

PROCESSES FOR THE PREPARATION OF TREATED SEEDS

FIELD OF THE DISCLOSURE

[0001] The present disclosure generally relates to processes for the preparation of treated seeds.

BACKGROUND

[0002] Prior to being planted, a seed may undergo seed treatment. For example, seeds may be treated with an active, such as amicrobial or fungicidal chemical, using a seed treater. Many seed treatment actives applied as coatings impart stickiness and/or tackiness to the seed surface. These surface characteristics can interfere with the flow of the seeds through industrial manufacturing and distribution equipment, which increases complexity and expense for the seed producer. For the same reason, seed treatment actives can also impede the flow of the seeds through planting equipment, which can result in planting errors and, ultimately, in lower crop yields.

[0003] In some cases, the flow of seeds can be improved by mixing the seeds with a powder flow-aid component, such as powdered graphite or talc, after treating with the active and before planting. However, due to heterogeneous volume density or powder packing fraction, the powder flow-aid component tends to respond in a variable fashion to processing equipment, most importantly in the treater feeding operation. Thus, the powder may lead to metering inconsistencies in the seed treater, including under-dosing, which may lead to ineffective lubricating of the seeds, and over-dosing, which may lead to undesirable dust-off and waste.

[0004] The seeds may be treated with other types of seed treatment components, other than or in addition to actives and flow-aid components.

SUMMARY OF THE DISCLOSURE

[0005] In one aspect, a method of preparing treated seeds generally comprises providing a single, solid one-piece body. The single, one-piece component has a selected mass and volume. The method further comprises reducing the single, solid one-piece body, and contacting the seeds with the reduced single, solid one-piece body.

[0006] A treated seed is provided, wherein the seed is produced using a method as described herein.

[0007] Other features will be in part apparent and in part pointed out hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a graph of the specific energy (in mJ/g) of treated seeds measured using the FT4 method described in Example 3, comparing wet and dry tableted talc. Lower bars indicate that less energy was required to complete the test, and indicate that the seeds exhibit increased flowability.

[0009] FIG. 2 is a graph of the specific energy (in mJ/g) of treated seeds measured using the FT4 method described in Example 3, comparing wet and dry tableted talc and talc dose.

[0010] FIG. 3 is a graph of the specific energy (in mJ/g) of treated seeds using the FT4 method described in Example 3, comparing talc grade and tableting pressure.

[0011] FIG. 4 is a graph of the specific energy (in mJ/g) of treated seeds, comparing pre-grinding of the talc and talc/mica blends.

[0012] FIG. 5 is a graph of the dust off (in grams dust per 100,000 seeds) of treated seeds using the method described in Example 4, comparing no talc, normal talc powder application, dry tableted talc, and wet tableted talc. Lower bars indicate lower dust generated.

[0013] FIG. 6 is a graph of the dust off (in grams dust per 100,000 seeds) of treated seeds using the method described in Example 4, comparing talc dosing on dry tableted talc and wet tableted talc.

DETAILED DESCRIPTION

[0014] In general, the processes described herein are suitable for applying a seed treatment (e.g., a dry seed treatment) to exterior surfaces of seeds.

[0015] In some processes described herein, a single, solid one-piece body is provided. The single, solid one-piece body may comprise a seed treatment component, such as described below. The single, solid one-piece body is reduced. The seeds are brought into contact with the seed treatment component in the seed treater, which occurs simultaneously with the reduction of the single, solid one-piece body. The exemplary steps are not necessarily in the order listed above. Two or more of the steps may be performed simultaneously. Two or more of the steps may occur or be performed sequentially. Two or more of the steps may occur simultaneously, although it may not be necessary for the steps to begin and end at the same time in order to occur simultaneously. That is, to “occur simultaneously” two or more steps at least partially overlap in time, although initiation and/or completion of the steps may not be simultaneous.

[0016] Seed Treater

[0017] In some processes described herein, seeds are treated with the single, one-piece body in a seed treater. Suitable apparatuses and equipment (i.e., seed treaters) for treating seeds are known in the art, and include, without limitation, batch treaters, continuous treaters, drum and pan coaters, and fluid bed coaters. The seeds may be treated with the single, solid one-piece body in other types of machines, devices, and apparatuses.

[0018] Seeds and Plant Species

[0019] The seed treatment methods described herein can be used in connection with any species of plant and/or the seeds thereof. The methods are typically used in connection with seeds that are agronomically important. The seed may be a transgenic seed from which a transgenic plant can grow and incorporates a transgenic event that confers, for example, tolerance to a particular herbicide or combination of herbicides, increased disease resistance, enhanced tolerance to insects, drought, stress and/or enhanced yield. The seed may comprise a breeding trait, including for example, in one embodiment a disease tolerant breeding trait. In some instances, the seed includes at least one transgenic and breeding trait.

[0020] The process can be used for the treatment of any suitable seed type, including, but not limited to, row crops and vegetables. In some embodiments, one or more plants are selected from Amaranthaceae (e.g., chard, spinach, sugar beet, quinoa), Asteraceae (e.g., artichoke, asters, chamomile, chicory, chrysanthemums, dahlias, daisies, echinacea, goldenrod, guayule, lettuce, marigolds, safflower, sunflowers,